



# 2014 PV Reliability, Operations & Maintenance Workshop

## PV O&M Roundtable Discussion

Sandia National Laboratories  
Electric Power Research Institute

May 7, 2014

SAND2014-4274C

# Large group working session

- Questions were posed to workshop attendees on:
  - How to simplify O&M through design?
  - How to make O&M activities more predictable?
  - How to make O&M actions more cost effective?

# Participant responses

- Insurance industry interest alignment
  - Industry consistency
- What demonstration of new technology is necessary to convey less risk?
- Finance community needs to invest early on – perception
- Confidence built by standards of excellence
- Comprehensive understanding of critical spares
- “Open source” (free) standards/software should be an end goal
- Need longitudinal analysis
- Understand component failure and mitigation processes
- Start with design approach to manage/inform O&M
  - Issue Avoidance

# Participant responses

- Implementation of bar code scanning
- Get rid of the trend on overbuilding – issue with amount of O&M that may result
  - High DC/AC ratios
- Cost issue with outsourcing
- Define or formalize feedback loop back to engineers and financing
- Role of retrofitting as an O&M strategy
- How can new innovation be bankable?
- Make case early on – up front investment will reap rewards in the long run – less emphasis on ‘low cost’
- Good is not good enough. How to differentiate quality

# Participant responses

- Focus on inverter controller boards
- Inverter modularity
- Inverters should follow uniform standards regarding fault codes
- O&M as the protector of the asset and the cash flow
- List of what components are failing. Work from there to focus efforts to address those failures
- More tie-in to standards from fault/failure analysis
- Determine what tool the industry needs to bring to financiers
- Issue with disconnects. Hard to perform O&M activities
- Instantaneous power output using matched reference cell